

## **DETAILED ACTION**

### ***Continued Examination Under 37 CFR 1.114***

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 3/22/2010 has been entered.

### ***Status of Claims***

Claims 1, 5, 6, and 13-18 are amended; claims 35-37 are added as new claims, claims 11-21, 23-25, and 27-32 are withdrawn as non-elected claims; and claims 1-10 and 33-37 remain for examination, wherein claims 1 and 5 are independent claims.

## **EXAMINER'S AMENDMENT**

An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it **MUST** be submitted no later than the payment of the issue fee.

The application has been amended as follows:

The product claims 11-21, 23-25, and 27-32 are cancelled since the Applicant elected Group I, process claims 1-10, and 33-37 without traverse in "response to

election/restriction" filed on Feb. 4, 2008. Although the Applicant indicates that reserving the right to rejoin withdrawn claims where appropriate as set forth under the guidance of In re Ochiai, however the product examination would not be limited to the manipulations of the recited steps, only the structure implied by the steps. MPEP 2113 R1. The Al-Zn-Mg alloy with claimed properties as recited in the instant claims 11 is known in the art (Refer to abstract, claims, and Col.4, line 44-Col.5, line 36 of US'394). The process limitation does not add patentable weight for the instant product claims.

There are typo errors in the instant claims 1 and 5, which are corrected as following according to the disclosures on page 8 step (c) of the instant specification:

Claim 1. (currently amended) A process for generating an intermediate laminated product in an aluminum alloy of the Al-Zn-Mg type, said process consisting of:

a) generating a plate by semi-continuous casting, the plate containing (in percentages per unit mass):

Mg 0.5-2.0, Mn <1.0, Zn 3.0-9.0, Si <0.50, Fe <0.50, Cu <0.50, Ti <0.15, Zr <0.20 the remainder aluminum with inevitable impurities, in which  $Zn/Mn > 1.7$ ;

b) subjecting said plate to homogenization or reheating to a temperature  $T_1$ , selected so that  $500^{\circ}\text{C} \leq T_1 \leq (T_s - 20^{\circ}\text{C})$ , where  $T_s$  is the alloy burning temperature[.];

c) conducting an initial hot-rolling step including one or more roll runs on a hot rolling mill, an input temperature  $T_2$  of the initial hot rolling step being selected such that  $(T_1 - 60^{\circ}\text{C}) \leq T_2 \leq (T_1 - 5^{\circ}\text{C})$ , and the rolling process being conducted in such a way that the output temperature  $T_3$  is such that  $(T_1 - 150^{\circ}\text{C}) \leq T_3 \leq (T_1 - 30^{\circ}\text{C})$  and  $T_3 \leq T_2$ ;

d) cooling a strip emerging from said initial hot-rolling step to a temperature  $T_4$ ;

e) conducting a second hot-rolling step on said strip at an input temperature  $T_5$ , the input temperature  $T_5$  being selected such that  $T_5 \leq T_4$  and  $200^\circ\text{C} \leq T_5 \leq 300^\circ\text{C}$ , and the second hot-rolling process being conducted in such a way that the coiling temperature  $T_6$  is such that  $(T_5 - 150^\circ\text{C}) \leq T_6 \leq (T_5 - 20^\circ\text{C})$ ;

f) optionally conducting at least a cold-rolling, aging treatment, and/or cutting operation[.];

wherein the yield strength  $R_{p0.2}$  of said laminated product is at least ~~250MPa~~250MPa, the fracture strength  $R_m$  of said laminated product is at least 280MPa, and the elongation at fracture of said laminated product is at least 8%.

Claim 5. (currently amended) A process for generating an intermediate laminated product in an aluminum alloy of the Al-Zn-Mg type, said process consisting of:

a) generating a plate by semi-continuous casting, the plate containing (in percentages per unit mass):

Mg 0.5-2.0, Mn <1.0, Zn 3.0-9.0, Si <0.50, Fe <0.50, Cu <0.50, Ti <0.15, Zr <0.20, and at least one element selected from the group consisting of Sc, Y, La, Dy, Ho, Er, Tm, Lu, Hf, and Yb with a concentration not exceeding the following values:

Sc <0.50%,

Y <0.34%,

La, Dy, Ho, Er, Tm, Lu <0.10% each,

Hf <1.20%,

Yb <0.50%[.].

- the remainder aluminum with inevitable impurities, in which  $Zn/Mn > 1.7$ ;
- b) subjecting said plate to homogenization or reheating to a temperature  $T_1$ , selected so that  $500^{\circ}C \leq T_1 \leq (T_s - 20^{\circ}C)$ , where  $T_s$  is the alloy burning temperature[.];
- c) conducting an initial hot-rolling step including one or more roll runs on a hot rolling mill, an input temperature  $T_2$  of the initial hot rolling step being selected such that  $(T_1 - 60^{\circ}C) \leq T_2 \leq (T_1 - 5^{\circ}C)$ , and the rolling process being conducted in such a way that the output temperature  $T_3$  is such that  $(T_1 - 150^{\circ}C) \leq T_3 \leq (T_1 - 30^{\circ}C)$  and  $T_3 \leq T_2$ ;
- d) cooling a strip emerging from said initial hot-rolling step to a temperature  $T_4$ ;
- e) conducting a second hot-rolling step on said strip at an input temperature  $T_5$ , the input temperature  $T_5$  being selected such that  $T_5 \leq T_4$  and  $200^{\circ}C \leq T_5 \leq 300^{\circ}C$ , and the second hot-rolling process being conducted in such a way that the coiling temperature  $T_6$  is such that  $(T_5 - 150^{\circ}C) \leq T_6 \leq (T_5 - 20^{\circ}C)$ ;
- f) optionally conducting at least a cold-rolling, aging treatment, and/or cutting operation[.];

wherein the yield strength  $R_{p0.2}$  of said laminated product is at least 250MPa, the fracture strength  $R_m$  of said laminated product is at least 280MPa, and the elongation at fracture of said laminated product is at least 8%.

### ***Status of the Previous Rejections***

The previous objection of claim 1 under informalities is withdrawn in view of the Examiner's amendment above.

The previous rejection of claims 1-10, 33, and 34 under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement is withdrawn in view of the applicants' amendment and arguments/remarks filed on 3/22/2010.

The previous rejection of claims 1-6 and 8 under 35 U.S.C. 103(a) as being unpatentable over Cho (US 4,988,394, thereafter US'394) alone or in view of Wyatt-Mair et al (US 5,894,879, thereafter US'879) is withdrawn in view of the applicants' amendment and arguments/remarks filed on 3/22/2010.

The previous rejection of claims 7, 8, and 10 under 35 U.S.C. 103(a) as being unpatentable over US'394 alone or in view of US'879, and further in view of Mohr et al (WO 92-03586, thereafter WO'586) is withdrawn in view of the applicants' amendment and arguments/remarks filed on 3/22/2010.

The previous rejection of claim 9 under 35 U.S.C. 103(a) as being unpatentable over US'394 alone or in view of US'879, and further in view of WO'586 and Saunders (NPL: The modeling of stable and metastable phase formation in multi-component A—alloys, in "Aluminum alloy, their physical and mechanical properties, Proc. ICAA9", eds. J.F.Nie et al, (Inst. Materials Engineering Australia, Melbourne, 2004) pp.96-106, thereafter, NPL-1) is withdrawn in view of the applicants' amendment and arguments/remarks filed on 3/22/2010.

The previous rejection of claims 33 and 34 under 35 U.S.C. 103(a) as being unpatentable over US'394 in view of Wyatt-Mair et al (US 5,894,879, thereafter US'879) is withdrawn in view of the applicants' amendment and arguments/remarks filed on 3/22/2010.

***Allowable Subject Matter***

Claims 1-10, and 33-37 are allowed. The following is a statement of reasons for the indication of allowable subject matter:

US'394 teaches a method of producing an uncrystallized Al-Zn-Mg thin gauge flat rolled product, e.g., plate or sheet with alloy having the compositions overlapping the compositions of the instant invention. US'394 teaches providing an alloy by casting techniques with continuous casting being preferred and US'394 teaches homogenization performance, hot rolling, warm rolling, and cold working and rolling. However US'394 does not specify operating the process without reheating and still obtaining the properties of Al-Zn-Mg: the yield strength  $R_{p0.2}$  of said laminated product is at least 250MPa, the fracture strength  $R_m$  of said laminated product is at least 280MPa, and the elongation at fracture of said laminated product is at least 8% as recited in the instant claims 1 and 5. The instant invention indicates a simplified process for manufacturing a rolled Al-Zn-Mg alloy.

***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jie Yang whose telephone number is 571-2701884. The examiner can normally be reached on IFP.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Roy King can be reached on 571-2721244. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

JY

/ Roy King/

Supervisory Patent Examiner, Art Unit 1793